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Scientific and Technical Information
Output of the Langley Research Center
for Calendar Year 1980

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LANGLEY RESEARCH CENTER

NASA Technical Memorandum 81950

Scientific and Technical Information
Output of the Langley Research Center
for Calendar Year 1980

Compiled by
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Langley Research Center
Hampton, Virginia



National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23665

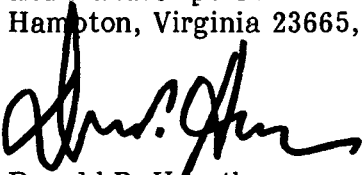
FOREWORD

This report contains the research output of the Center for calendar year 1980. This report is published annually in an attempt to effect greater awareness and distribution of the Center's research output.

The 1980 report displays several new features designed to enhance its usefulness. Emphasis has been placed on archival or documented research. Particular care has been taken to provide complete citations, including source of availability.

For calendar year 1980, the output of the Langley Research Center included 175 NASA Formal Reports, 136 Quick-Release Technical Memorandums, 301 NASA Contractor Reports, 146 Journal Articles, 352 Meeting/Conference Papers, 10 NASA Computer Programs, 85 NASA Tech Briefs, 20 Patents, and 203 items of unpublished research.

Comments regarding the usefulness of the report are welcomed as are suggestions for improving its usefulness. Comments/suggestions should be addressed to the Report and Manuscript Control Office (RAMCO), Mail Stop 180A, NASA Langley Research Center, Hampton, Virginia 23665, (804) 827-3251 or 827-2301.



Donald P. Hearth
Director

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INTRODUCTION

The Langley Research Center is one of the leading national laboratories for research and development in the sciences of aeronautics and space technology. For more than 60 years, Langley engineers and scientists have conducted basic and applied research in fluid and flight mechanics, flight systems, structures and materials, acoustics and noise reduction, measurements and instrumentation systems, data systems, and space and Earth sciences. The results of this research are disseminated through NASA scientific and technical publications as well as through a variety of non-NASA media. The Center's research output is processed through Langley's Scientific and Technical Information (STI) Program, which is an integral part of the NASA Scientific and Technical Information System. The Center's STI program is managed by the Scientific and Technical Information Programs Division (STIPD).

The new features that have been added to the report this year include author, NASA subject category, RTOP, and Tech Brief subject indexes. The categories have been expanded to include Computer Programs, Tech Briefs, and Patents. Each of these new categories is described below.

The computer programs listed in this document have been announced in recent issues of "Computer Program Abstracts," which were released in calendar year 1980. "Computer Program Abstracts," is an indexed journal containing abstracts of documented computer programs developed by NASA, NASA contractors, and other Federal Agencies. These computer programs are offered for sale through the NASA-sponsored Computer Software Management and Information Center (COSMIC) located at the University of Georgia.

The Tech Briefs listed in this document have been published in recent issues of "NASA Tech Briefs," which were released in 1980. "NASA Tech Briefs," a quarterly publication, is distributed free to engineers in U.S. industry and to other domestic technology transfer agents. It is both a current awareness document and a problem solving tool. For information on subscription to NASA Tech Briefs and other publications and services available through the NASA Technology Utilization Program, write to the Director, Technology Transfer Division, NASA Scientific and Technical Information Facility, P. O. Box 8757, Baltimore/Washington International Airport, Maryland 21240.

Patents owned in whole or part by Langley research personnel and listed in this document have been published in recent issues of "Scientific and Technical Aerospace Reports" (STAR). STAR, the NASA announcement journal for report literature, is available on a subscription basis from the U.S. Government Printing Office (GPO) or to qualified recipients from the NASA Scientific and Technical Information Facility. NASA Patent Application Specifications are sold by the National Technical Information Service (NTIS). Printed (paper) copies of patents are available for purchase from the Commissioner of Patents.

The citations are listed first by Division or Office and then under the following headings: Formal Reports, Quick-Release Technical Memorandums, Contractor Reports, Journal Articles, Meeting/Conference Papers, Computer Programs, Tech Briefs, Patents, and Unpublished Research. Under each heading, the citations are listed by author in alphabetical order. If a report has more than one author and those authors are from different Divisions or Offices, the citation is listed only once, under the senior author's name. Tech Briefs are listed under the main innovator's name. This is not necessarily the order in which the innovators' names appear on the Tech Brief.

A publication of this magnitude requires the efforts of many individuals. Special recognition is given to the Scientific and Technical Information Coordinators who were responsible for ensuring the accuracy of their respective Division or Office submittals, the Office of Technology Utilization and Applications Programs for providing the Tech Brief and Computer Program listings, and the Office of Patent Counsel for providing the Patent listings. Finally, a note of thanks and appreciation to those individuals in the Technical Editing Branch of STIPD, who typed, proofread, and indexed the report.

AVAILABILITY

Availability sources of the different output categories are given below:

<u>Category</u>	<u>Source</u>
NASA Report Literature:	National Technical Information Service (NTIS)
Formal Reports	5285 Port Royal Road
Quick-Release Technical Memorandums	Springfield, VA 22161
Contractor Reports	
	NASA Scientific and Technical Information Facility (STIF)
	P. O. Box 8757
	Baltimore/Washington International Airport, MD 21240
	NASA Industrial Applications Centers (IAC)
	(See Appendix for addresses of IAC's)
Journal Articles	Consult citation for source of
Conference/Meeting Papers	availability
Computer Programs	Computer Software Management and Information Center (COSMIC)
	112 Barrow Hall
	University of Georgia
	Athens, GA 30601
Tech Briefs	Office of Technology Utilization and Applications Programs
	Mail Stop 139A
	NASA Langley Research Center
	Hampton, VA 23665
Patents:	
Patent Application Specifications	National Technical Information Service (NTIS)
Printed Copies	Commissioner of Patents and Trademarks
	U.S. Patent and Trademark Office
	Washington, DC 20231
Unpublished Research	Consult the Author

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NASA LANGLEY RESEARCH CENTER
Hampton, Virginia

CALENDAR YEAR 1980

PUBLICATIONS FOR OFFICE OF THE DIRECTOR

Formal Reports

1. Loftin, Laurence K., Jr.: Subsonic Aircraft: Evolution and the Matching of Size to Performance. NASA RP-1060, August 1980, 443 p.
(Avail: NTIS Subject Category 01 RTOP 023-10-01)

Quick-Release Technical Memorandums

2. Anon: Research and Technology: 1980 Annual Report of the Langley Research Center. NASA TM-81910, November 1980, 45 p.
(Avail: NTIS Subject Category 99 RTOP 023-10-01)
3. Staff of the Langley Research Center: A Compendium of Computational Fluid Dynamics at the Langley Research Center. NASA TM-81877, August 1980, 273 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)

Contractor Reports

4. Darden, Geraldine C. (Compiler): Final Report: 1980 Summer Research Fellowship Program. (NAS1-14832 Hampton Institute.) NASA CR-159369, October 1980, 29 p.
(Avail: NTIS Subject Category 80 RTOP 340-00-00)

Journal Articles

5. Lindal, Gunnar F.; Hotz, Henry B.; Sweetnam, Donald N.; Shippoy, Zvi; Brenkle, Joseph P.; Hartsell, Gene V.; Spear, Richard T.; and Michael, William H., Jr.: Viking Radio Occultation Measurements of the Atmosphere and Topography Geophysical Research, Volume 84, Number B-14, December 1979, (Released 1980), p. 8443-8456.
(Avail: JGRL Subject Category 91 RTOP 889-52-03)

Meeting/Conference Papers

6. Hearth, Donald P.: Vehicle Expectations in Air Transportation for the Year 2000. Presented at the AIAA Global Technology 2000 Conference, May 5-11, 1980, Baltimore, Maryland. AIAA Paper No. 80-0932.
(Avail: AIAA Subject Category 01 RTOP 530-04-13)

7. **Hearth, Donald P. : Impact of Active Controls on Aircraft Design and Operations.**
Presented at the 1980 Technical Symposium and Annual Assembly Meeting
of the Radio Technical Commission for Aeronautics, November 20-21, 1980,
Arlington, Virginia.
(Avail: RTCA Secretariat Subject Category 08 RTOP 505-34-33)

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

Unpublished Research

8. **Michael, W. H., Jr. : Geodesy and Geophysics of Mars: Results From Radio Tracking Analyses.** Presented at the College of William and Mary Physics Colloquium, October 24, 1980, Williamsburg, Virginia.
9. **Michael, William H., Jr. ; and Kelly, George M. : Dynamical Constants and Reference Parameters for Mars.** Presented at the Second International Astronomical Union Colloquium (No.56) on Reference Coordinate Systems for Earth Dynamics, September 8-12, 1980, Warsaw, Poland.

PUBLICATIONS FOR OFFICE OF DIRECTOR FOR PROJECTS

Formal Reports

10. Holmberg, Neil A.; Faust, Robert P.; and Holt, H. Milton: Viking '75 Spacecraft Design and Test Summary, Volume I - Lander Design. NASA RP-1027, November 1980, 211 p.
(Avail: NTIS Subject Category 18 RTOP 815-00-00)
11. Holmberg, Neil A.; Faust, Robert P.; and Holt, H. Milton: Viking '75 Spacecraft Design and Test Summary, Volume II - Orbiter Design. NASA RP-1027, November 1980, 316 p.
(Avail: NTIS Subject Category 18 RTOP 815-00-00)
12. Holmberg, Neil A.; Faust, Robert P.; and Holt, H. Milton: Viking '75 Spacecraft Design and Test Summary, Volume III - Engineering Test Summary. NASA RP-1027, November 1980, 106 p.
(Avail: NTIS Subject Category 18 RTOP 815-00-00)

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

13. Herbert, Henry E.: A Computer Program for the Generation of Logic Networks From Task Chart Data. (NAS1-16078 Computer Sciences Corporation.) NASA CR-3364, December 1980, 36 p.
(Avail: NTIS Subject Category 61 RTOP 992-16-04)

Journal Articles

No journal articles.

Meeting/Conference Papers

14. Moore, Frederick L.; and Williams, Louise H.: Parametric Cost Estimating at NASA's Langley Research Center. Presented at the ISPA/RCA 2nd International Parametrics Conference, April 29 - May 1, 1980, Cherry Hill, New Jersey. Published in ISPA (International Society of Parametric Analysts) News, Summer 1980, Volume 1, Number 3, p. 12-22.
(Avail: ISPA Subject Category 81 RTOP 619-12-01)

15. Wright, Howard T.: Maintenance Challenges Associated With the Technology Development for Fuel Efficient Transport Aircraft of the 1980's. Presented at the International Aircraft Maintenance Engineering Exhibition and Conference (AIRMEC '80 USA), April 8-10, 1980, Dallas, Texas.
(Avail: Avia. Engrg. & Mainten. Magazine (Proceedings) Subject Category 05 RTOP 534-02-13)
16. Wright, Howard T.: Maintenance Challenges Associated With Fuel Efficient Aircraft of the 80's. Presented at the Society of Logistics Engineers' 1980 Logistics Symposium: Aviation Maintenance Technology in the 80's, Patuxent River, Maryland, May 21-22, 1980.
(Avail: Southern Maryland Chapter, SLE (Proceedings Pending) Subject Category 05 RTOP 534-02-13)

Computer Programs

No computer programs.

Tech Briefs

17. Aerospace Division of Honeywell, Inc.: Repairing Flat Cables. NASA Tech Brief LAR-11950. Released 1980.
(Avail: NASA Langley Technology Utilization Office Category: Fabrication Technology)
18. Batista, Roy I. (TRW, Inc.): Brazing Titanium to Stainless Steel. NASA Tech Brief LAR-11441. Released 1980.
(Avail: NASA Langley Technology Utilization Office Category: Fabrication Technology)
19. Honeywell, Inc.: Conserving Power in Computer Memories. NASA Tech Brief LAR-11952. Released 1980.
(Avail: NASA Langley Technology Utilization Office Category: Electronic Systems)
20. Honeywell, Inc.: Switching Reduces Computer Power Requirements. NASA Tech Brief LAR-11958. Released 1980.
(Avail: NASA Langley Technology Utilization Office Category: Electronic Systems)

Patents

No patents.

Unpublished Research

21. Wright, Howard T.: (1) Government Roles and Responsibilities; (2) Roles and Responsibilities, Quality and Quantity, of Government Involvement in Assuring Contractual/Mission Performance. Presented at the NSIA/AIA/USAF-SD/NASA Mission Assurance Conference and Workshops, April 29 - May 2, 1980, Los Angeles, California.
22. Wright, Howard T.: NASA's Future Activities. Presented at the Society of American Military Engineers (SAME), September 17, 1980, Savannah, Georgia.

PUBLICATIONS FOR SCOUT PROJECT OFFICE

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

23. Qualls, G. L.; Kress, S. S.; Storey, W. W.; and Ransdell, P. N.: Environmental Protection Requirements for Scout/Shuttle Auxiliary Stages. (NAS1-12500 Vought Corporation.) NASA CR-3328, September 1980, 64 p.
(Avail: NTIS Subject Category 15 RTOP 490-02-02)

Journal Articles

No journal articles.

Meeting/Conference Papers

No meeting/conference papers.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

24. David-Malig, Manual A.: Method and Tool for Machining a Transverse Slot About a Bore. U.S. Patent 4,218,941. Issued 1980.
(Avail: U.S. Patent & Trademark Office Subject Category 31)

Unpublished Research

No unpublished research.

PUBLICATIONS FOR AIRCRAFT ENERGY EFFICIENCY PROJECT OFFICE

Formal Reports

25. Anon: Selected NASA Research in Composite Materials and Structures. NASA CP-2142, August 1980, 240 p.
(Avail: NTIS Subject Category 24 RTOP 534-03-13)

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

26. Chovil, D. V.; Grant, W. D.; Jamison, E. S.; Syder, H.; Desper, O. E; Harvey, S. T.; and McCarty, J. E.: Advanced Composite Elevator for Boeing 727 Aircraft, Volume 2 - Final Report. (NAS1-14952 Boeing Commercial Airplane Company.) NASA CR-159258, November 1980, 405 p.
(Avail: IAC Subject Category 05 RTOP 534-03-13)
27. Oliver, Wayne R.: Results of Design Studies and Wind Tunnel Tests of an Advanced High Lift System for an Energy-Efficient Transport. (NAS1-14744 McDonnell Douglas Corporation.) NASA CR-159389, 1980.
(Avail: IAC Pending Subject Category 05 RTOP 534-02-13)
28. Patel, S. P.; and Donelson J. E.: Investigation of the Interference Effects of Mixed-Flow Long-Duct Nacelles on a DC-10 Wing. (NAS1-14743 McDonnell Douglas Corporation.) NASA CR-159202, March 1980, 66 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
29. Patel, S. P.; and Donelson, J. E.: Long-Duct Nacelle Aerodynamic Development for DC-10 Derivatives. (NAS1-15327 McDonnell Douglas Corporation.) NASA CR-159271, August 1980, 29 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
30. Staff of Boeing Commercial Airplane Company: Selected Advanced Aerodynamic and Active Control Concepts Development - Summary Report. (NAS1-14742 Boeing Commercial Airplane Company.) NASA CR-3220, January 1980, 54 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
31. Staff of Boeing Commercial Airplane Company: Integrated Application of Active Controls (IAAC) Technology to an Advanced Subsonic Transport Project - Conventional Baseline Configuration. (NAS1-14742 and NAS1-15325 Boeing Commercial Airplane Company.) NASA CR-159248, June 1980, 207 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)

32. Staff of Boeing Commercial Airplane Company: Selected Advanced Aerodynamics and Active Controls Technology Concepts Development on a Derivative B-747 Aircraft - Summary Report. (NAS1-14741 Boeing Commercial Airplane Company.) NASA CR-3295, June 1980, 50 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
33. Staff of Boeing Commercial Airplane Company: Selected Advanced Aerodynamics and Active Controls Technology Concepts Development on a Derivative B-747 Aircraft - Final Report. (NAS1-14741 Boeing Commercial Airplane Company.) NASA CR-3164, July 1980, 300 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
34. Staff of Boeing Commercial Airplane Company: Integrated Application of Active Controls (IAAC) Technology to an Advanced Subsonic Transport Project - Initial ACT Configuration - Final Report. (NAS1-14742 and NAS1-15325 Boeing Commercial Airplane Company.) NASA CR-159249, July 1980, 406 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
35. Staff of Boeing Commercial Airplane Company: Aircraft Surface Coatings Study - Verification of Selected Materials. (NAS1-14742 Boeing Commercial Airplane Company.) NASA CR-159288, September 1980, 78 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
36. Staff of Boeing Commercial Airplane Company: Integrated Application of Active Controls (IAAC) Technology to an Advanced Subsonic Transport Project - Initial ACT Configuration Design Study, Summary Report. (NAS1-14742 and NAS1-15325 Boeing Commercial Airplane Company.) NASA CR-3304, October 1980, 41 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
37. Steckel, Doris K.; Dahlin, John A.; and Henne, Preston A.: Results of Design Studies and Wind Tunnel Tests of High-Aspect-Ratio Supercritical Wings for an Energy Efficient Transport. (NAS1-14744 McDonnell Douglas Corporation.) NASA CR-159332, October 1980, 190 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)
38. Sturgeon, R. F.; et al.: Evaluation of Laminar Flow Control System Concepts for Subsonic Commercial Transport Aircraft. (NAS1-14631 Lockheed-Georgia Company.) NASA CR-159253, September 1980, 316 p.
(Avail: NTIS Subject Category 02 RTOP 534-01-13)
39. Sturgeon, R. F.; et al.: Evaluation of Laminar Flow Control System Concepts for Subsonic Commercial Transport Aircraft - Summary Report. (NAS1-14631 Lockheed-Georgia Company.) NASA CR-159254, September 1980, 99 p.
(Avail: NTIS Subject Category 02 RTOP 534-01-13)
40. Taylor, A. B.: Selected Winglet and Mixed-Flow Long-Duct Nacelle Development for DC-10 Derivative Aircraft - Summary Report. (NAS1-14743 McDonnell Douglas Corporation.) NASA CR-3296, June 1980, 48 p.
(Avail: IAC Subject Category 05 RTOP 534-02-13)

41. Tibbetts, J. G.: A Computer Program for the Prediction of Near-Field Noise of Aircraft in Cruising Flight - User's Guide. (NAS1-14946 Lockheed-Georgia Company.) NASA CR-159274, June 1980, 138 p.
(Avail: IAC Subject Category 71 RTOP 514-55-03)

Journal Articles

No journal articles.

Meeting/Conference Papers

42. James, Arthur M.; and Bohon, Herman L.: Production Readiness Verification Testing. Presented at the Third International Conference on Composite Materials, August 25-30, 1980, Paris, France.
(Avail: Pergamon Press, Advances in Composite Materials Subject Category 24 RTOP 534-03-13)
43. Leonard, Robert W.; and Mulville, Daniel: Current and Projected Use of Carbon Composites In United States Aircraft. Presented at the AGARD 39th Technical Meeting of the Avionics Panel on Electromagnetic Effects of (CARBON) Composite Materials Upon Avionics Systems, June 16-19, 1980, Lisbon, Portugal.
(Avail: NTIS Subject Category 05 RTOP 534-03-13)
44. Maiden, Donald L.: Aircraft Surface Coatings for Erosion/Corrosion Protection and Excrescence Drag Reduction. Presented at the International Aircraft Maintenance Engineering Exhibition and Conference (AIRMEC '80 USA), April 8-10, 1980, Dallas, Texas.
(Avail: AE&M Subject Category 05 RTOP 534-02-13)

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

Unpublished Research

45. Bohon, Herman L.: Aircraft Energy Efficiency (ACEE) Composite Primary Aircraft Structures - An Overview. Presented at the 1980 SAE Aerospace Congress and Exposition, October 13-16, 1980, Los Angeles, California.

46. Leonard, Robert W.: NASA's Aircraft Energy Efficiency Program. Presented at the Antelope Valley Section - American Institute of Aeronautics and Astronautics, March 4, 1980, Lancaster, California.

PUBLICATIONS FOR LARGE SPACE SYSTEMS TECHNOLOGY PROGRAM OFFICE

Formal Reports

47. Ward, James C., Jr. (Compiler): Large Space Systems Technology - 1979. NASA CP-2118, February 1980, 510 p.
(Avail: NTIS Subject Category 15 RTOP 542-01-13)

Quick-Release Technical Memorandums

48. Russell, R. A.; Campbell, T. G.; and Freeland, R. E.: A Technology Development Program for Large Space Antennas. NASA TM-81902, September 1980, 43 p.
(Avail: NTIS Subject Category 18 RTOP 506-62-43)

Contractor Reports

49. Bloom, K. A.; and Lillenas, A. N.: Space Assembly Fixtures and Aids. (NAS1-15322-T8 Rockwell International Corporation.) NASA CR-159285, July 1980, 181 p.
(Avail: NTIS Subject Category 18 RTOP 525-72-03)
50. LeFever, A. E.: Space Platform Utilities Distribution Study. (NAS1-15322-T10 Rockwell International Corporation.) NASA CR-159272, July 1980, 83 p.
(Avail: NTIS Subject Category 18 RTOP 524-72-03)

Journal Articles

No journal articles.

Meeting/Conference Papers

51. Huckins, Earle K., III: A Case for Large Space Systems. Presented at the 39th International Conference of the Society of Allied Weight Engineers, Inc., May 12-14, 1980, St. Louis, Missouri.
(Avail: SAWE Subject Category 15 RTOP 542-01-13)
52. James, Robert L., Jr.: Large Space Systems Technology Overview. Presented at the Second Annual Technical Review, Large Space Systems Technology - 1980, November 18-20, 1980, Hampton, Virginia.
(Avail: NTIS, NASA CP-2168 Subject Category 18 RTOP 542-01-13)
53. Russell, Richard A.; Campbell, Thomas G.; and Freeland, Robert E.: A Technology Development Program for Large Space Antennas. Presented at the Thirty-First International Astronautical Federation (IAF) Congress, September 21-28, 1980, Tokyo, Japan.
(Avail: NTIS Subject Category 18 RTOP 542-01-13)

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

Unpublished Research

No unpublished research.

OFFICE OF DIRECTOR FOR ELECTRONICS
PUBLICATIONS FOR ANALYSIS AND COMPUTATION DIVISION

Formal Reports

54. Rowell, Lawrence F.; Powell, Richard W.; and Stone, Howard W., Jr.: Development of the Reentry Flight Dynamics Simulator for Evaluation of the Space Shuttle Orbiter Entry Systems. NASA TP-1700, October 1980, 95 p.
(Avail: NTIS Subject Category 18 RTOP 506-63-13)
55. Smith, Kathryn A.: Evaluation of Verification and Testing Tools for FORTRAN Programs. NASA TM-80205, July 1980, 21 p.
(Avail: NTIS Subject Category 61 RTOP 506-61-13)
56. Steinmetz, George G.: Simulation Development and Evaluation of an Improved Longitudinal Velocity-Vector Control-Wheel Steering Mode and Electronic Display Format. NASA TP-1664, August 1980, 94, p.
(Avail: NTIS Subject Category 06 RTOP 534-04-13)

Quick-Release Technical Memorandums

57. Knight, John C.: Summary Report of Workshop on Real-Time Programming for NASA Flight Projects. NASA TM-80236, February 1980, 9 p.
(Avail: NTIS Subject Category 61 RTOP 505-31-83)
58. Parrish, Russell V.: Preliminary Investigation of Motion Requirements for the Simulation of Helicopter Hover Tasks. NASA TM-81801, April 1980, 29 p.
(Avail: NTIS Subject Category 05 RTOP 505-43-33)
59. Taylor, Nancy L.: Guidelines in Preparing Computer-Generated Plots for NASA Technical Reports With the LRC Graphics Output System. NASA TM-81908, November 1980, 119 p.
(Avail: NTIS Subject Category 61 RTOP 992-16-05)

Contractor Reports

60. Baron, Sheldon; Muralidharan, Ramal; and Kleinman, David: Closed Loop Models for Analyzing Engineering Requirements for Simulators. (NAS1-14449 Bolt Beranek and Newman Inc.) NASA CR-2965, February 1980, 232 p.
(Avail: NTIS Subject Category 05 RTOP 505-09-43)
61. Berliner, Jeffrey E.: Functional Specification of the Performance Measurement (PM) Module. (NAS1-15192 Bolt Beranek and Newman Inc.) NASA CR-159301, July 1980, 76 p.
(Avail: NTIS Subject Category 61 RTOP 534-04-13)

62. Gandelman, Jules; and Holden, Robert: A Pilot Training Manual for the Terminal Configured Vehicle Electronic Attitude Director Indicator. (NAS1-15724 Embry-Riddle Aeronautical University.) NASA CR-159195, January 1980, 91 p.
(Avail: STIF Subject Category 09 RTOP 534-04-13)
63. Howell, R. D.; Guillebeau, W. M.; and Long, R. L.: Interface File Tape Concept. (NAS1-15400 SDC Integrated Services, Inc.) NASA CR-159284, June 1980, 23 p.
(Avail: STIF Subject Category 61 RTOP 992-16-04)
64. Preller, R. F.; and Rose, O. J.: Langley Wind Tunnel Force Data Reduction Program. (NAS1-15400 System Development Corporation.) NASA CR-165650, November 1980, 71 p.
(Avail: STIF Subject Category 02 RTOP 992-16-04)

Journal Articles

65. Tapia, M. A.; and Tucker, Jerry H.: Complete Solution of Boolean Equations, IEEE Transactions on Computers, Volume C-29, No. 7, July 1980, p. 662-665.
(Avail: IEEE Subject Category 59 RTOP 505-31-83)

Meeting/Conference Papers

66. Houck, Jacob A.; and Markos, Athena T.: Development of a Multi-Media Crew-Training Program for the Terminal Configured Vehicle Mission Simulator. Presented at the 1980 Summer Computer Simulation Conference, August 25-27, 1980, Seattle, Washington.
(Avail: Society for Computer Simulation Subject Category 53 RTOP 534-04-13)
67. McKissick, Burnell T.; Ashworth, Billy R.; Parrish, Russell V.; and Martin, Dennis J., Jr.: A Study of the Comparative Effects of Various Means of Motion Cueing During a Simulated Compensatory Tracking Task. Presented at the ACM/IEEE/SCS Thirteenth Annual Simulation Symposium, March 17-21, 1980, Tampa, Florida.
(Avail: V. P. Boyd, Falls Church, Virginia Subject Category 05 RTOP 505-09-43)
68. Ricard, G. L.; Parrish, R. V.; Ashworth, B. R.; and Wells, M. D.: Simulation Requirements for Helicopter Landing. Presented at the Air Force Academy 7th Symposium on Psychology in the DOD, April 16-18, 1980, Colorado Springs, Colorado.
(Avail: AF Academy Subject Category 05 RTOP 505-34-23)
69. Shang, J. S.; Smith, R. E.; and Hankey, W. L.: Flow Oscillations of Spike-Tipped Bodies. Presented at the AIAA 18th Aerospace Sciences Meeting, January 14-16, 1980, Pasadena, California. AIAA Paper No. 80-0062.
(Avail: AIAA Subject Category 34 RTOP 505-31-83)

70. Smith, Robert E.: Numerical Solution of the Navier-Stokes Equations For a Family of Three-Dimensional Corner Geometries. Presented at the AIAA 13th Fluid and Plasma Dynamics Conference, July 14-16, 1980, Snowmass, Colorado. AIAA Paper No. 80-1349.
(Avail: AIAA Subject Category 34 RTOP 505-31-83)
71. Smith, Robert E.; and Weigel, Barbara L.: Analytic and Approximate Boundary Fitted Coordinate Systems for Fluid Flow Simulation. Presented at the AIAA 18th Aerospace Sciences Meeting, January 14-16, 1980, Pasadena, California. AIAA Paper No. 80-0192.
(Avail: AIAA Subject Category 34 RTOP 505-15-33)

Computer Programs

No computer programs.

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Formal Reports

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No journal articles.

Meeting/Conference Papers

No meeting/conference papers.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

APPENDIX

INDUSTRIAL APPLICATIONS CENTERS

Aerospace Research Applications Center
1201 East 38th Street
Indianapolis, IN 46205
(317) 264-4644

Kerr Industrial Applications Center
Southeastern Oklahoma State University
Station A, Box 2584
Durant, OK 74701
(405) 924-6822

NASA Industrial Applications Center
701 LIS Building
University of Pittsburgh
Pittsburgh, PA 15260
(412) 624-5211

NASA Industrial Applications Center
University of Southern California
Denny Research Building
University Park
Los Angeles, CA 90007
(213) 743-6132

New England Research Applications Center
Mansfield Professional Park
Storrs, CT 06268
(203) 486-4533

North Carolina Science and Technology
Research Center
Post Office Box 12235
Research Triangle Park, NC 27709
(919) 549-0671

Technology Applications Center
University of New Mexico
2500 Central Avenue, SE
Albuquerque, NM 87131
(505) 277-3622

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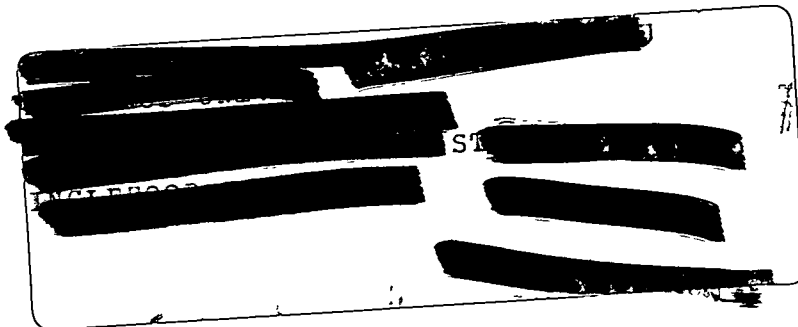
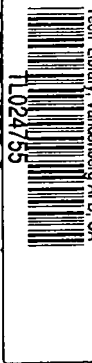
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